**PROJECT FACT SHEET**

**CONTRACT TITLE:** Geological and Petrophysical Characterization of the Ferron Sandstone for 3-D Simulation of a Fluvial-Deltaic Reservoir

**DATE REVIEWED:** 08/02/1994 **DATE REVISED:** 07/28/1994

**OBJECTIVE:** Create a comprehensive, interdisciplinary, quantitative characterization of a fluvial-deltaic reservoir which will allow realistic interwell and reservoir-scale modeling to be used for improved oil field development. Results could improve reservoir management through proper infill and extension drilling strategies, reduce economic risks, increase recovery from existing oil fields, and provide more reliable reserve calculations

**ID NUMBER:** DE-AC22-93BC14896

**B & R CODE:** AC0530000

**CONTRACT PERFORMANCE PERIOD:**
09/29/1993 to 09/28/1996
**PROGRAM:** Supporting Research
**RESEARCH AREA:**

**DOE PROGRAM MANAGER:**
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**PROJECT SITE:**
Salt Lake City, UT
Emery County, UT

**SCHEDULED MILESTONES:**

| FUNDING (1000'S) | DOE | OTHER | CONTRACTOR | TOTAL |
|---|---|---|---|---|
| PRIOR FISCAL YRS | 550 | 0 | 909 | 1,459 |
| FISCAL YR 1994 | 214 | 0 | 0 | 214 |
| FUTURE FUNDS | 0 | 0 | 0 | 0 |
| TOTAL EST'D FUNDS | 764 | 0 | 909 | 1,673 |

**PROJECT DESCRIPTION:** Quantitatively determine geological and petrophysical properties of the Ferron Sandstone to improve reserve estimates in fluival-dominated deltaic reservoir systems and to aid in designing more efficient production strategies by collecting new data and integrating both new and existing data into a 3-D representation of spatial variations in porosity, storativity, and tensorial character of rock permeability at a scale appropriate for interwell to regional scale reservoir simulation.

**PRESENT STATUS:**
1. Collecting measured sections, well logs, core descriptions, mini-permeameter values, and other data. Entering this information into the database and preparing strip logs.
2. Completing aerial photography of entire Ferron outcrop in the study area (approximately 80 miles (130 km)), digitizing the negatives onto CDs, reproducing photos from the CDs, and constructing photomosaics for regional stratigraphic and case study field work.
3. Completing permitting work for core hole locations in the Ivie Creek case-study area.
4. Conducting regional outcrop mapping and measuring selected stratigraphic sections.
5. Beginning case studies of the Ivie Creek and Willow Springs Wash areas including lithofacies mapping and measuring sections.
6. Obtaining additional software to develop a 3-D gridded database.

**ACCOMPLISHMENTS:**
1. An initial test set of oblique photographs of a portion of the Ferron outcrop was digitized and transferred to a compact disc(CD) as part of the regional stratigraphy study.
2. The Utah Geological Survey (UGS) has collected and compiled published and unpublished maps, measured sections, well logs, core descriptions, mini-permeameter data, reports, and other data.
3. Three case-study sites for detailed analysis of the major reservoir types have been selected and approved by the project team.
4. Eight core holes locations have been staked in the Ivie Creek area.
5. The UGS INTEGRAL computer database has been modified for this study to integrate various geologic attributes of the Ferron Sandstone to point-source locations.
6. A large-diameter core (7 7/8 inch) from a University of Utah Research Institute (UURI) Ferron drill hole (the UURI No. 1) was logged and important core segments photographed.

**BACKGROUND:** Nationwide fluvial-deltaic reservoirs have the largest developed oil reserves, and due to the high degree of reservoir heterogeneity, the largest amount of untapped and unrecovered oil within developed reservoirs. Reservoir heterogeneity is dramatically exposed in the fluvial-deltaic Ferron Sandstone Member of the Cretaceous Mancos Shale in east-central Utah.

The Utah Geological Survey (UGS) leads a multidisciplinary team to develop a comprehensive, quantitative characterization of the Ferron Sandstone as an example of a fluvial-deltaic reservoir which will allow realistic interwell and reservoir-scale modelling. These models may be used for improved oil-field development in similar reservoirs world wide. The Ferron Sandstone project team consists of the UGS (prime contractor), University Utah, Brigham Young University, Utah State University, Amoco Production Company, Mobil Exploration and Producing Company, and several geologic contractors.